

Amendment to the claims

1. (Currently Amended). An article of manufacture comprising a substantially transparent substrate of a size and shape suitable for use as [a decorative] an ornamental object [selected from the group consisting of gemstones and non-functional ornaments] and a multilayer thin film interference coating over substantially the entire surface of said substrate, said coating consisting of alternating layers of substantially nonabsorbing materials with a relatively high refractive index and a relatively low refractive index with respect to each other, the thicknesses and identities of said layers being chosen so that the entire coating will preferentially reflect at least some of the incident light with wavelengths between 400 nm and 700 nm inclusive.

2 (Original). The article in claim 1 in which the substrate is a member selected from the group consisting of silicon dioxide, aluminum oxide, zirconium oxide, titanium oxide, hafnium oxide, germanium oxide, zinc oxide, scandium oxide, yttrium oxide, calcium oxide, magnesium oxide, barium oxide, beryllium oxide, boron oxide, phosphorus oxide, lead oxide, arsenic oxide, sodium oxide, potassium oxide and carbon.

3 (Original). The article in claim 1 in which the substrate is comprised of a polymeric material.

4. (Original). The article of claim 1 in which the alternating layers comprising the multilayer thin film interference coating are composed of metal oxides.

5 (Original). The article of claim 1 in which the alternating layers comprising the multilayer thin film interference coating comprise materials selected from the group consisting of silicon dioxide, aluminum oxide, tantalum oxide, niobium oxide, titanium dioxide, hafnium dioxide, zirconium dioxide, magnesium fluoride, calcium fluoride, zinc sulfide, zinc selenide and carbon.

6 (Original). The article of claim 1 in which the number of layers comprising the multilayer thin film interference coating is three or greater.

7 (Original). The article of claim 1 in which the alternating layers comprising the multilayer thin film interference coating are sequentially deposited by a chemical vapor deposition process.

8 (Original). The article claim 1 in which the alternating layers comprising the multilayer thin film interference coating are sequentially deposited by a low pressure chemical vapor deposition process.

9 (Original). The article of claim 1 in which the alternating layers comprising the multilayer thin film interference coating are sequentially deposited by plasma assisted process.

10 (Original). The article of claim 1 in which the alternating layers comprising the multilayer thin film interference coating are sequentially deposited by a sputtering process.

11 (Original). The article of claim 1 in which the alternating layers comprising the multilayer thin film interference coating are sequentially deposited by an evaporative coating process.

12 (Original). The article of claim 1 in which the alternating layers comprising the multilayer thin film interference coating are sequentially deposited by spraying onto the surface of the substrate liquid solution containing materials capable of being decomposed to form the desired layers.

13. (Currently Amended). An article of manufacture comprising a substantially transparent substrate having at least one curved surface and at least two dimensions [of] substantially the same [proportion] and a multilayer thin film interference coating over substantially the entire surface of said substrate, said coating consisting of alternating layers of substantially nonabsorbing materials with a relatively high refractive index and a relatively low refractive index with respect to each other, the thicknesses and identities of said layers being chosen so that the entire coating will preferentially reflect and transmit at least some of the incident light within predetermined wavelength bands.

14. (Previously presented). The article of Claim 13 wherein the entire coating preferentially transmits at least some of the incident light above a predetermined wavelength.

15. (Previously presented). The article of Claim 13 wherein the entire coating preferentially transmits at least some of the incident light below a predetermined wavelength.

16. (Previously presented). The article of Claim 13 having a size and shape suitable for use as a decorative object selected from the group consisting of gemstones and ornaments.

17. (Currently Amended). An article of manufacture comprising:
a substrate having height, width, and depth dimensions [of] substantially the same [proportion] formed from a substantially transparent material; and a substantially uniform multilayer thin film interference coating over substantially the entire surface of said non-planar substrate, said coating comprising alternating layers of materials having different refractive indices to thereby form a coating which is substantially transmissive of incident light at predetermined wavelengths.

18. (Previously presented). The article of Claim 17 wherein the coating is substantially transmissive of incident light above a predetermined wavelength.

19. (Previously presented). The article of Claim 17 wherein the coating is substantially transmissive of incident light below a predetermined wavelength.

20. (Previously presented). The article of Claim 17 wherein the coating is substantially transmissive of incident light within a predetermined wavelength band.

21. (Previously presented). The article of Claim 17 having a size and shape suitable for use as a decorative object selected from the group consisting of gemstones and ornaments.

22. (Currently Amended). A uniformly coated object comprising a substrate having a depth dimension [of] substantially the same [proportion] as either its height or width dimensions formed from a substantially transparent material and a coating over substantially the entire surface thereof, said coating comprising alternating layers of

materials having relatively high and relatively low reflective indices relative to each other and being substantially uniform and over substantially the entire surface of said substrate.

23. (Previously presented). The object of Claim 22 wherein said coating controls the transmission of incident light at predetermined wavelengths.

24. (Previously presented). The object of Claim 22 wherein said coating controls the absorption of incident light at predetermined wavelengths.

25. (Previously presented). The object of Claim 22 wherein said coating controls the reflection of incident light at predetermined wavelengths.

26. (Previously presented). The article of Claim 22 having a size and shape suitable for use as a decorative object selected from the group consisting of gemstones and ornaments.

27. (Previously presented). A decorative object comprising a substantially transparent substrate having at least two non-parallel curved surfaces and a coating uniformly covering substantially the entire surface of the substrate, said coating comprising alternating layers of materials having differing refractive indices to thereby substantially transmit all of the incident light at predetermined wavelengths.

28. (Currently Amended). A method of making a uniformly coated object, said method comprising the steps of:

(a) providing a substrate having maximum height, width, and depth dimensions [of] substantially the same [proportion];

(b) depositing a coating over substantially the entire surface of the substrate, the coating comprising alternating layers of materials having different indices of

refraction so that the coating is substantially transmissive of light at predetermined wavelengths.

29. (Previously presented). The method of Claim 28 wherein the coating is deposited by low pressure chemical vapor deposition.

30. (Previously presented). The method of Claim 28 wherein the object has a size and shape suitable for use as a decorative object selected from the group consisting of gemstones and ornaments.

31. (Previously presented). The method of Claim 28 wherein the coating is substantially transmissive of incident light above a predetermined wavelength.

32. (Previously presented). The method of Claim 28 wherein the coating is substantially transmissive of incident light below a predetermined wavelength.

33. (Previously presented). The method of Claim 28 wherein the coating is substantially transmissive of incident light within a predetermined wavelength band.

34. (Previously presented). The method of Claim 28 having a size and shape suitable for use as a decorative object selected from the group consisting of gemstones and ornaments.

35. (Currently Amended). A method of making a uniformly coated object comprising the steps of:

(a) providing a substrate having at least one curved surface and at least two dimensions [of] substantially the same [proportion];

(b) depositing a coating over substantially the entire surface of the substrate, the coating comprising alternating layers of materials having different indices of

refraction so that the coating is substantially transmissive of light at predetermined wavelengths.

36. (Previously presented). The method of Claim 35 wherein the coating is deposited by low pressure chemical vapor deposition.

37. (Previously presented). The method of Claim 35 wherein the coating is substantially transmissive of incident light above a predetermined wavelength.

38. (Previously presented). The method of Claim 35 wherein the coating is substantially transmissive of incident light below a predetermined wavelength.

39. (Previously presented). The method of Claim 35 wherein the coating is substantially transmissive of incident light within a predetermined wavelength band.

40. (Previously presented). An article of manufacture comprising:
a substantially transparent substrate having a desired shape with at least one curved surface and substantially the same maximum dimension in at least two orthogonal directions; and

a multilayer thin film interference coating covering over substantially the entire surface of said substrate,

said coating comprising alternating layers of substantially non-absorbing materials (a) where the materials in said alternating layers have materially different refractive indices with respect to each other and (b) where the thicknesses of said alternating layers and the identities of the materials are such that said coating will preferentially reflect at least some of the incident light with wavelengths between 400 nm and 700 nm inclusive.

41. (Previously presented). The article of Claim 40 in which said substrate is selected from the group consisting of silicon dioxide, aluminum oxide, tantalum oxide, niobium oxide, titanium dioxide, hafnium dioxide, zirconium dioxide, magnesium fluoride, calcium fluoride, zinc sulfide, zinc selenide and carbon.

42. (Previously presented). The article of Claim 40 in which the substrate is comprised of a polymeric material and said alternating layers are comprised of metal oxides.

43. (Previously presented). The article of Claim 40 wherein said coating is substantially transmissive of incident light within a predetermined band of wavelengths.

44. (Previously presented). An article of manufacture comprising:
a substantially transparent substrate having a desired shape with substantially the same maximum dimension in three orthogonal directions and at least one generally circular cross-section; and

a multilayer thin film interference coating covering over substantially the entire surface of said substrate,

said coating comprising alternating layers of substantially non-absorbing materials
(a) where the materials in said alternating layers have materially different refractive indices with respect to each other and (b) where the thicknesses of said alternating layers and the identities of the materials are such that said coating will preferentially reflect at least some of the incident light with wavelengths between 400 nm and 700 nm inclusive.

45. (Currently Amended). A method of making an article of manufacture comprising the steps of:

(a) providing a substantially transparent, three dimensional substrate having at least one curved surface and substantially the same maximum dimensions in at least two orthogonal directions;

(b) depositing a multilayer thin film interference coating on substantially the entire surface of the substrate,

said coating comprising alternating layers of substantially nonabsorbing materials (i) where the alternating layers have materially different refractive indices with respect to each other and (ii) where the thicknesses of the alternating layers and the identities of the materials are such that the coating will preferentially reflect at least some of the incident light with wavelengths between 400 nm and 700 nm inclusive.

46. (Previously presented). The method of Claim 44 wherein the substrate is comprised of a polymeric material and the materials in the alternating layers are metal oxides.

47. (Previously presented). The method of Claim 44 wherein the coating is substantially transmissive of incident light within a predetermined band of wavelengths.

48. (Currently Amended). A method of making an article of manufacture comprising the steps of:

(a) providing a substantially transparent, three dimensional substrate having substantially the same maximum dimensions in at least two orthogonal directions and at least one generally circular cross-section;

(b) depositing a multilayer thin film interference coating on substantially the entire surface of the substrate by a chemical vapor depositing process,

said coating comprising alternating layers of substantially nonabsorbing materials (i) where the alternating layers have materially different refractive indices with respect to each other and (ii) where the thicknesses of the alternating layers and the identities of the materials are such that the coating will preferentially reflect at least some of the incident light with wavelengths between 400 nm and 700 nm inclusive.

Status Of Claims And Support For Claim Changes

Claims 1-49 are pending. The amendment of Claim 1 has been discussed with and approved by the examiner.

The support for the amendment of Claims 13, 17, 22, 28, 35, 45 and 48 may be found in Figure 1 and the turtle shape disclosed at column 5, line 46.